AMENDMENTS TO THE CLAIMS

1. **(Currently Amended)** A ~~M~~method for the detection of at least one nucleotide sequence in at least one target nucleic acid molecule whose sequence is not known comprising the following steps:
   (a) hybridizing~~ation of~~ at least one target nucleic acid molecules with a set of probes comprising different nucleotide base sequences, wherein each probe exhibits a mass different ~~to~~ from the mass of all the other probes in said set;
   (b) separating~~on of~~ the non-hybridized probes;
   (c) contacting ~~of~~ the at least one hybridized probes with a matrix supporting the desorption of the probe(s) by means of a laser beam;
   (d) analyzing~~sis of~~ the ~~probes~~ at least one hybridized probe ~~and~~ surrounded by ~~the~~ said matrix and immobilized on a ~~probe~~ support ~~consisting~~ comprising material that conducts electricity ~~of electrically conductive material~~ in a mass spectrometer; and
   (e) determining~~ation of~~ the sequence of said at least one target nucleic acid molecules ~~exhibiting the sequence~~, wherein the position(s) of the at least one probes on the ~~probe~~ support allows for an allocation to ~~the~~ said at least one target nucleic acid molecule hybridizing therewith.

2. **(Currently Amended)** The ~~M~~method according to claim 1, wherein ~~the~~ said at least one target nucleic acid molecules ~~are~~ is ~~transferred~~ applied to the surface of a carrier before or after step (a).

3. **(Currently Amended)** The ~~M~~method according to claim 2, wherein the surface of ~~the~~ said carrier is the surface of the ~~probe~~ support that comprises material that conducts electricity~~consisting of conductive material~~.

4. **(Currently Amended)** The ~~M~~method according to claim 2, wherein before step (c) ~~the~~ said carrier with the at least one target nucleic acid molecules ~~which are~~ applied to its surface and which ~~carry~~carries the at least one hybridized probes is applied to the ~~probe~~ support ~~consisting of conductive material~~that comprises material that conducts electricity.

5. **(Currently Amended)** The ~~M~~method according to claim 2, wherein in step (c) the at least one hybridized probes ~~are~~ is separated from the immobilized nucleic acid molecules before, after or through the contact with the matrix.

6. **(Currently Amended)** The ~~M~~method according to ~~any one of~~ claims ~~1 to 5~~, wherein the ~~probe~~ support has a surface which is metal, coated with glass or chemically modified.

7. **(Currently Amended)** The m~~M~~ethod according to ~~any one of~~ claims ~~1 to 6~~, wherein the immobilization of the at least one target nucleic acid molecules on the ~~probe~~ support is carried out through a NH_2, an epoxy- or a SH-function by means of coating ~~of the probe~~ support surface with silicate or silane, via protein-substrate-, protein-protein- or a protein-nucleic acid-interaction or via interaction between two hydrophobe components.

8. **(Currently Amended)** The ~~M~~method according to claim 7, wherein the protein-substrate-interaction is a biotin-streptavidin-bond or an antibody-antigen-bond.

9. **(Currently Amended)** The ~~M~~method according to claim 7, wherein the protein-nucleic acid-interaction is a Gene32 protein-nucleic-acids-linking.

10. **(Currently Amended)** The m~~M~~ethod according to ~~any one of~~ claims ~~1 to 9~~, wherein the set of probes are nucleic acids with a mass tag.

11. **(Currently Amended)** The ~~M~~method according to claim 10, wherein the mass tag is also a charge tag.

12. **(Currently Amended)** The m~~M~~ethod according to claim 10, wherein ~~the~~ said nucleic acids have an additional charge tag.

13. **(Currently Amended)** The ~~M~~method according to ~~any one of~~ claims ~~1 to 12~~, wherein ~~the~~ said set of probes are modified nucleic acid molecules.

14. **(Currently Amended)** The ~~M~~method according to claim 13, wherein ~~the~~ said modified nucleic acid molecules are PNAs, alkylated phosphorothioate nucleic acids or alkylphosphonate nucleic acids.

15. **(Currently Amended)** The ~~M~~method according to ~~any one of~~ claim ~~1 to 14~~, wherein ~~the~~ said set of probes are produced by combinatorial solid phase synthesis.

16. **(Currently Amended)** The ~~M~~method according to claim 15, wherein various base building blocks are marked in such a way that each probe synthesized from them can be differentiated from other probes via its mass in the mass spectrometer.

17. **(Currently Amended)** The ~~M~~method according to claim 16, wherein ~~the~~ said marking consists of a methyl-, ethyl-, propyl-, a branched or non-branched alkyl-, a halogen-substituted branched or unbranched alkyl-, alkoxyalkyl-, alkylaryl-, arylakyl-, alkoxyaryl- or aryloxyalkyl-group, or one of its deuterated or otherwise isotopic variants.

18. **(Currently Amended)** The ~~M~~method according to ~~any one of~~ claims 1~~3~~4 ~~to 17~~, wherein ~~the~~ said set of probes have at least one modification in a defined position away from randomized nucleotides which allows for cleavage of the probe.

19. **(Currently Amended)** The ~~M~~method according to claim 18, wherein ~~the~~ said modification is the introduction of a phosphorothioate group and/or an RNA base and/or a phosphotriester bond in the probe.

20. **(Currently Amended)** The ~~M~~method according to ~~any one of~~ claims 1 ~~to 19~~, wherein ~~the~~ said matrix is a solution of α-cyano-4-hydroxy cinnamic acid in acetone at a ratio of 1:9 to 9:1~~, preferably at a ratio of 1:1,~~ or a mixture of α-cyano-4-hydroxy cinnamic acid methyl ester and α-cyano-4-methoxy cinnamic acid or sinapic acid or its methyl derivative at a ratio of 1:9 to 9:1~~, preferably at a ratio of 1:1~~.

21. **(Currently Amended)** The ~~M~~method according to ~~any one of~~ claim 1 ~~to 19~~, wherein ~~the~~ said matrix is a solution of α-cyano-4-hydroxy cinnamic acid in acetone at a ratio of 1:9 to 9:1~~, preferably at a ratio of 1:1,~~ or a mixture of α-cyano-4-hydroxy cinnamic acid methyl ester and α-cyano-4-methoxy cinnamic acid or sinapic acid or its methyl derivative at a ratio of 1:9 to 9:1~~, preferably at a ratio of 1:1~~, which is applied as solution in acetone, isopropanol, acetonitril, ethanol, methanol or water or in a mixture of two or more of those solvents to the MALDI probe support.

22. **(Currently Amended)** The ~~M~~method according to ~~any one of~~ claims 1 ~~to 21~~, wherein ~~the~~ said set of probes ~~are~~ is produced as a partial library~~ies~~ having different mass and/or charge tags.

23. **(Withdrawn)** Kit containing

(a) a set of probes as defined in any one of claims 11 to 18 and/or

(b) a probe support which has been pre-treated and, thus, allows for the linking of an array of target DNAs and/or contains already bound target DNAs.

24. **(New)** The method according to claim 20, wherein said ration is 1:1.

25. **(New)** The method according to claim 21, wherein said ration is 1:1.

26. **(New)** A method for the detection of at least one nucleotide sequence in at least one target nucleic acid molecule comprising the following steps;

(a) hybridizing a target nucleic acid molecule with a set of probes produced using combinatoirial synthesis comprising different nucleotide base sequences, wherein each probe exhibits a mass different from the mass of all the other probes in said set;

(b) separating the non-hybridized probes;

(c) contacting the at least one hybridized probe with a matrix supporting the desorption of the probe(s) by means of a laser beam;

(d) analyzing the at least one hybridized probe surrounded by said matrix and immobilized on a support comprising material that conducts electricity in a mass spectrometer; and

(e) determining the sequence of said at least one targer nucleic acid molecule, wherein the position(s) of the at least one probe on the support allows for an allocation to said nucleic acid molecule hybridizing therewith.

27. **(New)** A method for the detection of at least one nucleotide sequence in at least one target nucleic acid molecule comprising the following steps

(a) hybridizing at least one target nucleic acid molecule with a set of probes comprising different nucleotide base sequences, wherein each probe contains a mass tag which causes each probe to exhibit a mass different from the mass of all the other probes in said set;

(b) separating the non-hybridized probes;

(c) contacting the at least one hybridized probe with a matrix supporting the desorption of the probe(s) by means of a laser beam;

(d) analyzing the at least one hybridized probe surrounded by said matrix and immobilized on a support comprising material that conducts electricity in a mass spectrometer; and

(e) determining the sequence of said at least one target nucleic acid molecule, wherein the position(s) of the at least one probe on the support allows for a allocation to said nucleic acid molecule hybridizing therewith.

28. (New) The mthod according to claim 26 or claim 27, wherein said at least one target nucleic acid molecule is transferred to the surface of a carrier before or after step (a).

29. (New) The method according to claim 28, wherein before step (c) said carrier with said target nucleic acid molecule(s) and which carrier the hybridized probes is applied to the probe support comprising material that conducts electricity.